

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
20V	250mΩ@4.5V	0.75A
	350mΩ@2.5V	



合肥矽普半导体

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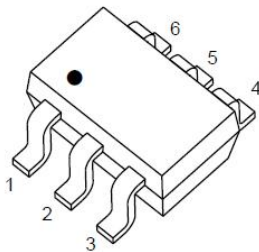
Feature

- High power and current handling capability
- Surface mount package
- ESD protected 2KV

Application

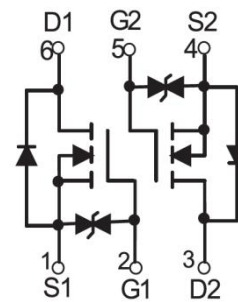
- Battery Switch
- DC/DC Converter

Package

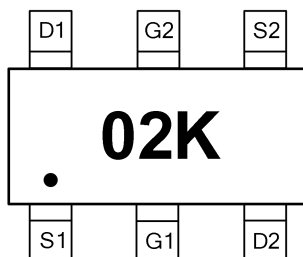


SOT-363

Circuit diagram



Marking



02K

:Device Code

Order Information

Device	Package	Unit/Tape
SP2002KDTW	SOT-363	3000

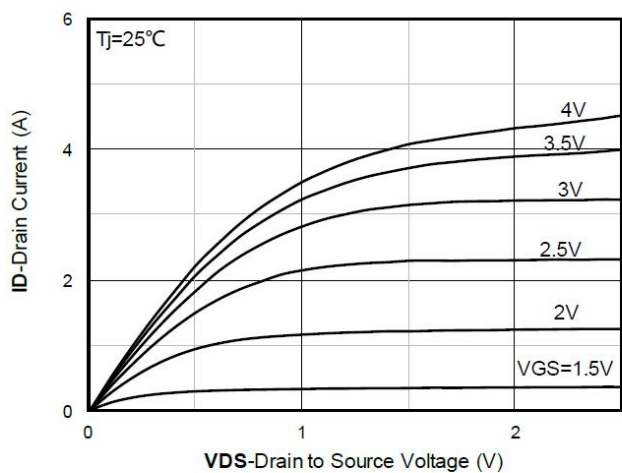
Absolute maximum ratings (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	I_D	0.75	A
Pulse Drain Current Tested	I_{DM}	3	A
Power Dissipation	P_D	200	mW
Thermal Resistance Junction-to-Ambient	$R_{\theta JA}$	625	°C/W
Storage Temperature Range	T_{STG}	-55 to 150	°C
Operating Junction Temperature Range	T_J	-55 to 150	°C

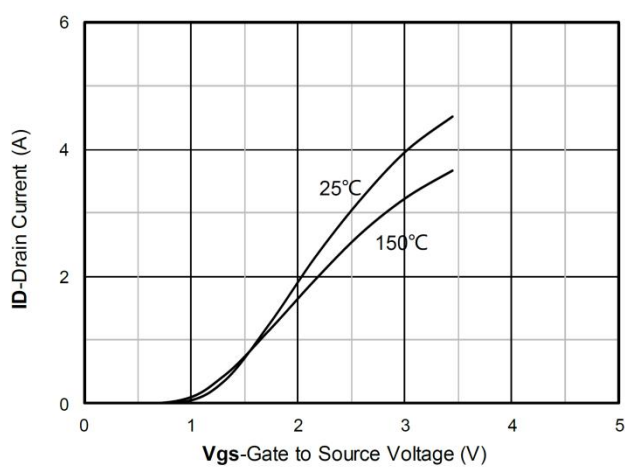
Electrical characteristics (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	VGS=0V , ID=250μA	20	-	-	V
Drain-Source Leakage Current	I _{DSS}	VDS=16V , VGS=0V	-	-	1	uA
Gate-Source Leakage Current	I _{GSS}	VGS=±12V , VDS=0V	-	-	±10	uA
Gate Threshold Voltage	VGS(th)	VDS=VGS , ID=250μA	0.30	0.65	1.00	V
Static Drain-Source On-Resistance	R _{DS(ON)}	VGS=4.5V , ID=500mA	-	250	380	mΩ
		VGS=2.5V , ID=500mA	-	350	450	
Dynamic characteristics						
Input Capacitance	C _{iss}	VDS=10V , VGS=0V , f=1MHz	-	35	-	pF
Output Capacitance	C _{oss}		-	19	-	
Reverse Transfer Capacitance	C _{rss}		-	9	-	
Total Gate Charge	Q _g	VDS=10V , VGS=4.5V , ID=500mA	-	0.8	-	nC
Gate-Source Charge	Q _{gs}		-	0.3	-	
Gate-Drain Charge	Q _{gd}		-	0.16	-	
Switching Characteristics						
Turn-On Delay Time	t _{d(on)}	VDD=10V VGS=4.5V , RG=10Ω , ID=500mA	-	4	-	nS
Turn-On Rise Time	t _r		-	19	-	
Turn-Off Delay Time	t _{d(off)}		-	10	-	
Turn-Off Fall Time	t _f		-	21	-	
Source-Drain Diode characteristics						
Diode Forward Voltage	V _{SD}	VGS=0V , IS=1A , TJ=25℃	-	-	1.2	V

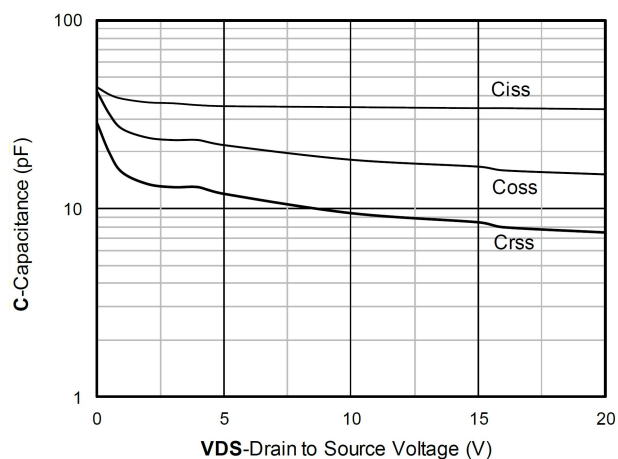
Typical Characteristics



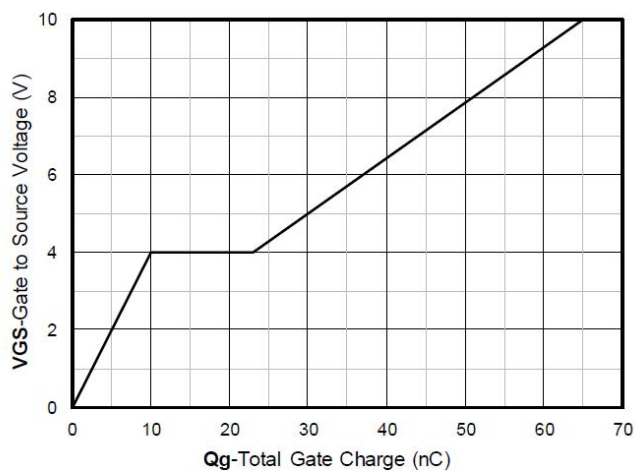
Output Characteristics



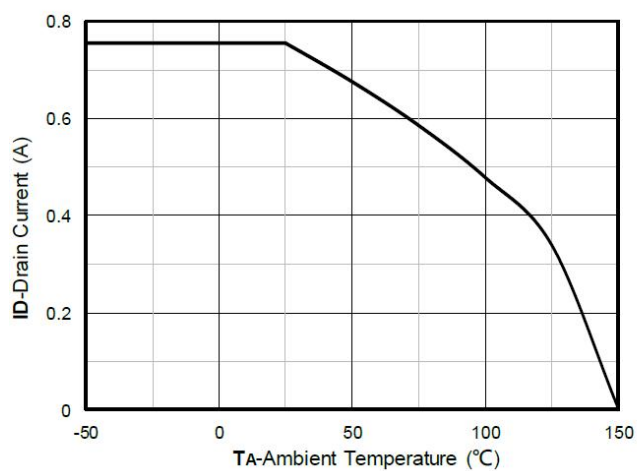
Transfer Characteristics



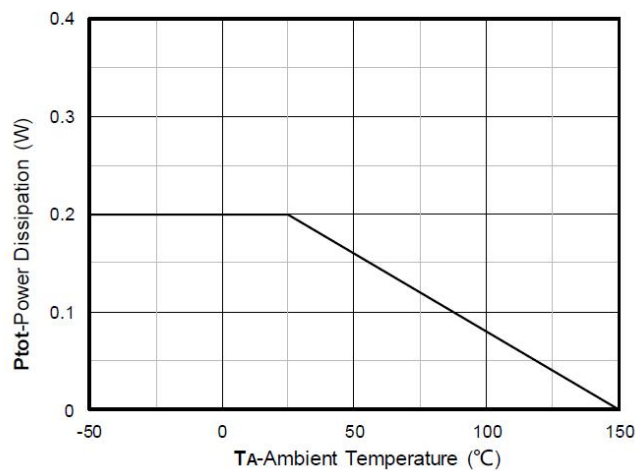
Capacitance Characteristics



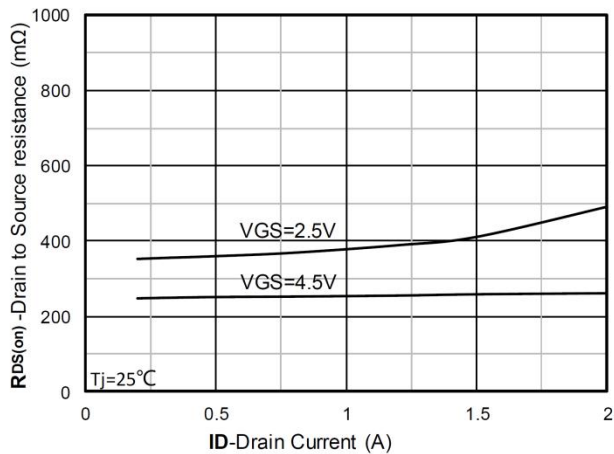
Gate Charge



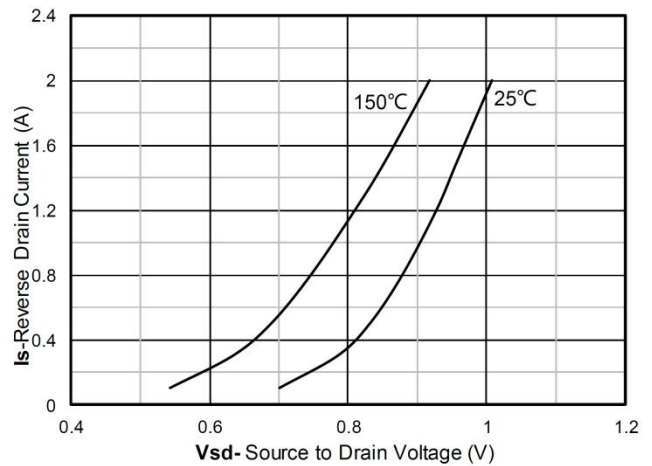
Current dissipation



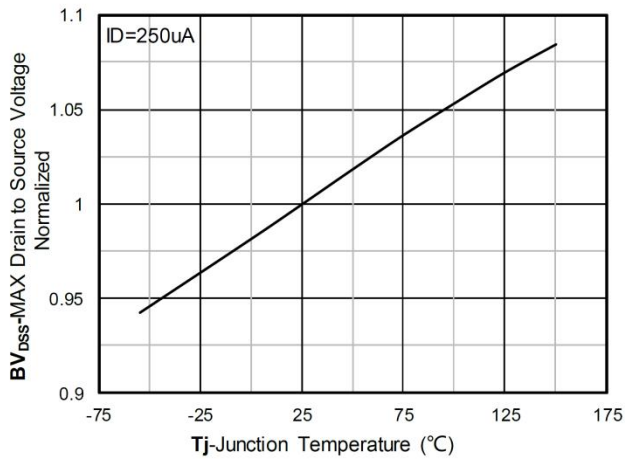
Power dissipation



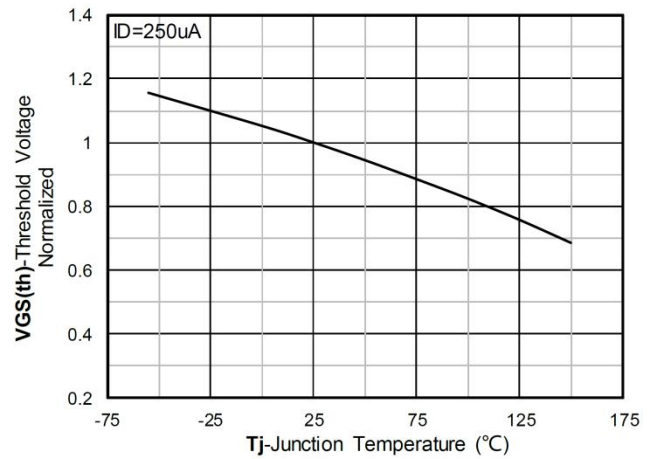
$R_{DS(on)}$ VS Drain Current



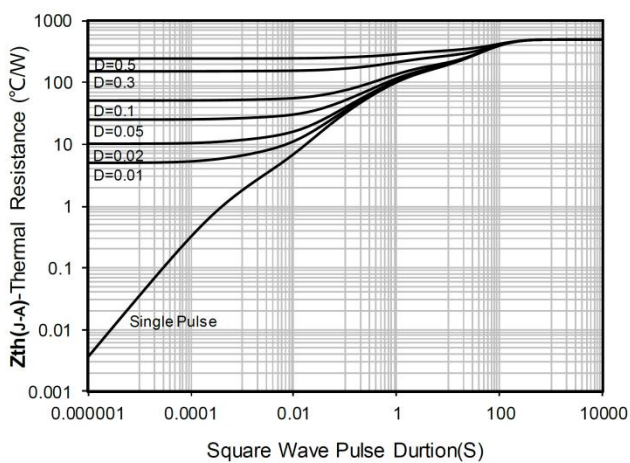
Forward characteristics of reverse diode



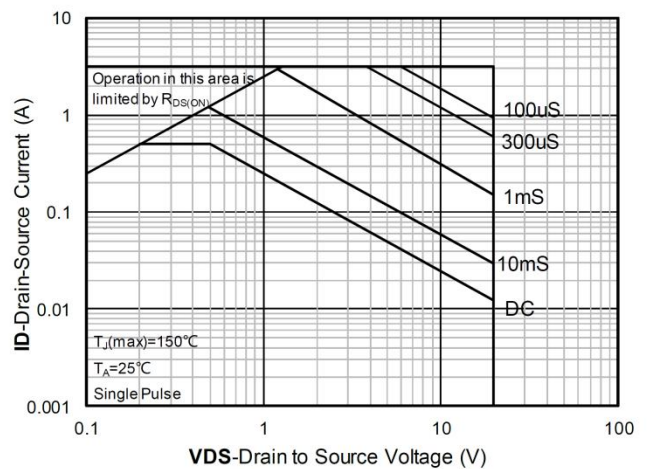
Normalized breakdown voltage



Normalized Threshold voltage

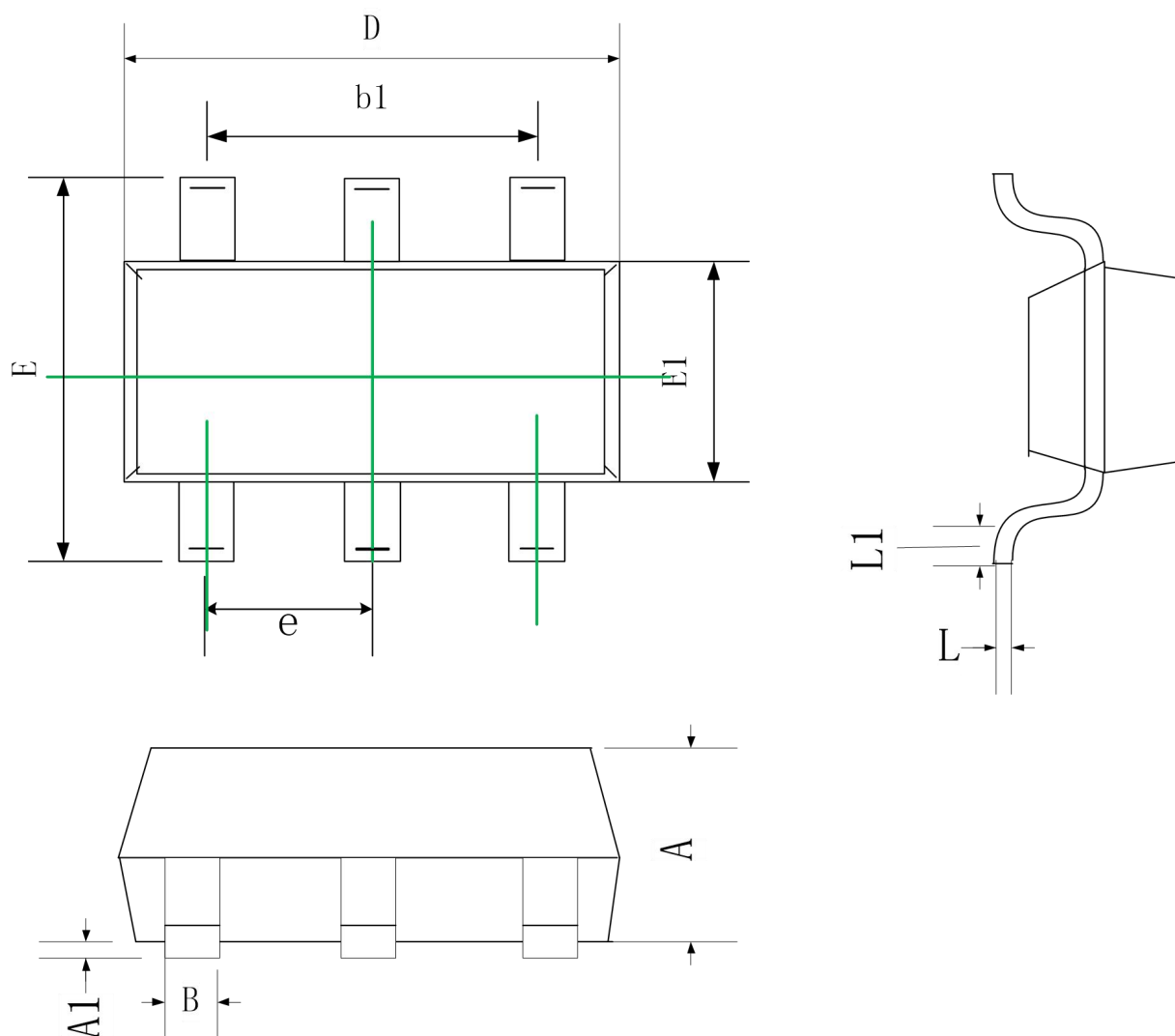


Maximum Transient Thermal Impedance



Safe Operation Area

SOT-363 Package Information



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	0.90	1.00
A1	0.00	0.10
B	0.10	0.30
b1	1.30	
D	1.80	2.20
E	2.00	2.20
E1	1.15	1.35
e	0.65 TYP.	
L	0.10	0.25
L1	0.15	0.4

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